LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA10 | Dunsmore, Wendover and Halton

Flood risk assessment (WR-003-010)

Water resources

November 2013

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Department for Transport

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1 Introduction

1.1 Structure of the water resources and flood risk assessment appendices

1.1.1 The water resources and flood risk assessment appendices comprise three parts. The first of these is a route-wide appendix (Volume 5: Appendix WR-001-000).

1.1.2 Specific appendices for each community forum area (CFA) are also provided. For the Dunsmore, Wendover and Halton area (CFA10) these are:

- a water resources assessment (Volume 5: Appendix WR-002-010); and
- a flood risk assessment (i.e. this appendix).

1.1.3 Maps referred to throughout the water resources and flood risk assessment appendices are contained in the Volume 5, Water Resources and Flood Risk Assessment Map Book.

1.2 Scope and structure of this assessment

1.2.1 This flood risk assessment (FRA) considers the assessment of flood risk in CFA10. The assessment has been carried out in accordance with the requirements of the National Planning Policy Framework (NPPF)[1] which aims to prevent inappropriate development in areas at risk of flooding and to ensure that where development is necessary in areas at risk of flooding it is safe without increasing flood risk elsewhere.

1.2.2 The FRA methodology and a review of the relevant local planning policy documents are provided in Section 2 of this report. The design criteria are provided in Section 3 and Section 4 documents the sources of information that have been reviewed. Section 5 provides a description of the planned works within the study area. Section 6 considers baseline flood risk and the risk of flooding to the Proposed Scheme from all relevant sources. Flood risk mitigation measures included within the Proposed Scheme are detailed in Section 7. The effect of the Proposed Scheme on the risk of flooding is considered in Section 8.

1.3 Location

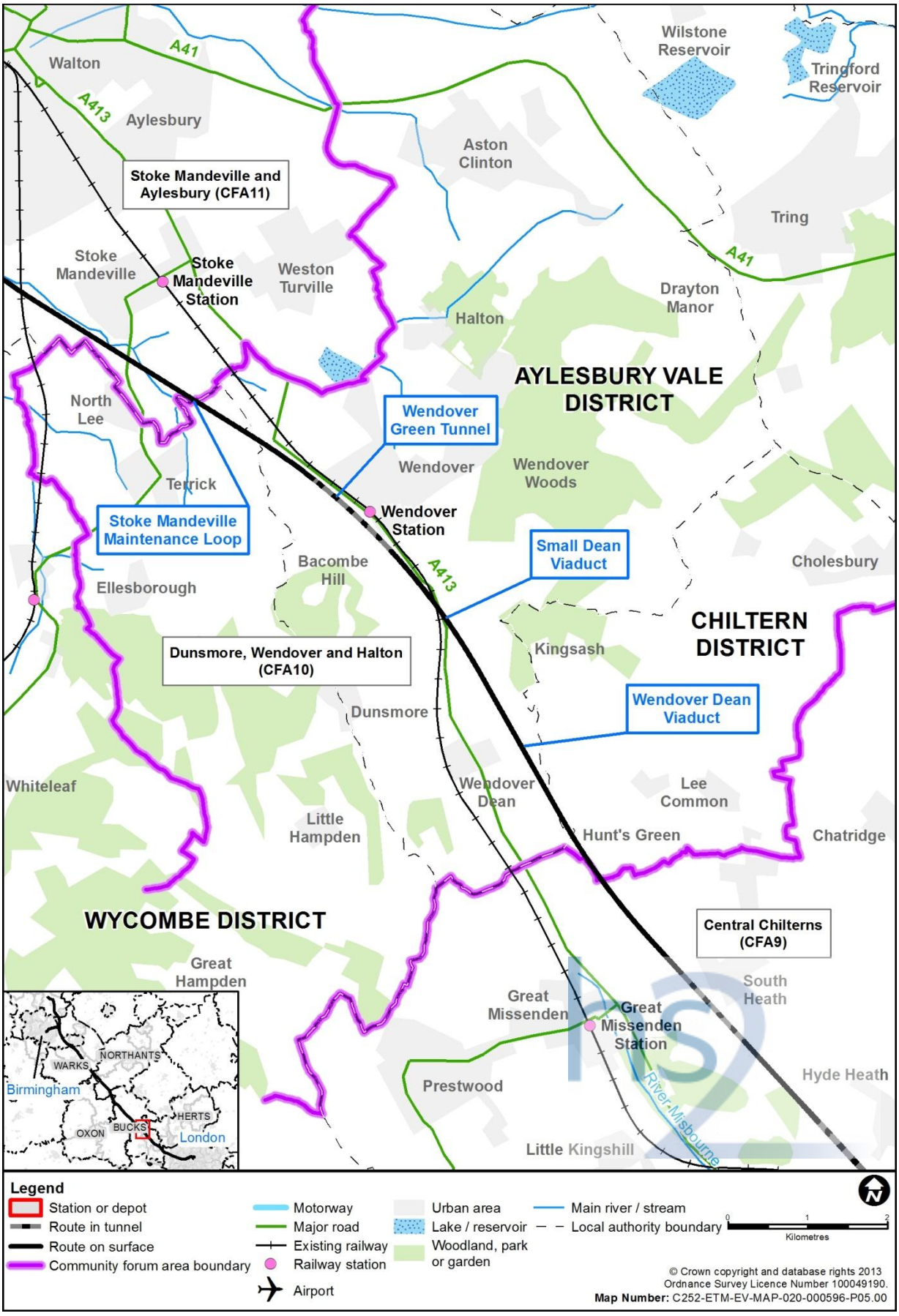
1.3.1 CFA10 covers approximately 8km of the Proposed Scheme in the Chiltern, Wycombe and Aylesbury Vale districts of Buckinghamshire. It extends from Leather Lane to the south-east of Lee Common near Hunt's Green to Nash Lee as shown in Figure 1. The Central Chilterns area (CFA9) and the Stoke Mandeville and Aylesbury area (CFA11) lie respectively to the south and to the north.

1.3.2 The study area extends to a distance of 1km from the centre line of the route and includes the parishes of The Lee, Wendover and Ellesborough. It extends from the boundary of Great Missenden, Wendover and The Lee parishes in the south-east to the boundary with Stoke Mandeville parish in the north-west. The corresponding council wards are Cholesbury, The Lee and Bellingdon, Wendover, and Icknield.

[1] Department for Communities and Local Government (2012), *National Planning Policy Framework*.

1.3.3 The Proposed Scheme will not cross any designated watercourses within CFA10.

Figure 1: Dunsmore, Wendover and Halton area



2 Flood risk assessment methodology

2.1 Source-pathway-receptor model

2.1.1 Flood risk is assessed using the source-pathway-receptor model. In this model individual sources of flooding within the study area are identified. The primary source of flooding is rainfall which is a direct source in the short-term (surface water flooding) and can lead to flooding from watercourses (river flooding) and overloaded man-made collection systems (sewer flooding) in the short- or medium-term. Stored rainfall, either naturally in below ground aquifers and natural lakes or artificially in impounded reservoirs and canals, can lead to flooding when the storage capacity of the system is exceeded. A final source of flooding arises from tidal effects and storm surges caused by low pressure systems over the sea.

2.1.2 For there to be a risk of flooding at an individual receptor there must be a pathway linking it to the source of flooding. The pathways within the study area are assessed by reviewing national datasets that show the spatial distribution of flood risk. The associated risk magnitude is then categorised.

2.1.3 Receptors considered in this assessment include the Proposed Scheme and existing development within 1km of the Proposed Scheme. The Proposed Scheme includes all associated permanent infrastructure. Areas of interest are identified through comparison of the national spatial datasets with the design drawings. Where a risk is identified mitigation is proposed in line with recommendations in the NPPF.

2.1.4 Existing receptors within the study area are identified using Ordnance Survey (OS) mapping information. A high-level screening assessment is then undertaken to identify receptors that are within or in close proximity to an area of flood risk via pathways indicated using the flood risk data sources listed below. The vulnerability of each receptor is classified using Table 2 of the NPPF Technical Guidance Document[2].

2.1.5 The assessment then considers the vulnerability of the receptor with reference to the flood risk category of the source using Table 3 of the NPPF Technical Guidance Document and assesses whether the Proposed Scheme has any potential to influence or alter the risk of flooding to each receptor. Where such potential has been identified mitigation is proposed based on further analysis.

2.2 Flood risk categories

2.2.1 The level of flood risk is categorised by assessing the design elements against the datasets for each source. A matrix showing the flood risk category associated with each flooding source is presented in Table 1.

[2] Department for Communities and Local Government (2012), *National Planning Policy Framework Technical Guidance.*

Table 1: Flood risk category matrix for all flooding sources

Source of flooding	Flood risk category				
	No risk	**Low**	**Medium**	**High**	**Very high**
Rivers		Flood Zone 1	Flood Zone 2	Flood Zone 3a	Flood Zone 3b
Surface water	No surface water flooding.	Surface water flooding <0.3m for 1 in 200 years event.	Surface water flooding >0.3m for 1 in 200 years event; and Surface water flooding <0.3m for 1 in 30 years event.	Surface water flooding >0.3m for 1 in 30 years event.	
Groundwater		Very low-low	Moderate	High-very high	
Drainage and sewer systems	No sewer in vicinity of site.	Surcharge point >20m from site and no pathways.	Surcharge point within 20m of site and restricted pathways.	Sewer network crosses site and pathways exist.	
Artificial sources	Outside of inundation mapping/no pathway exists.	Within inundation mapping/ pathway exists.			

2.3 Regional and local flooding planning policy documents

2.3.1 The lead local flood authority (LLFA) for the study area is Buckinghamshire County Council (BuCC). The recommendations from the BuCC Preliminary Flood Risk Assessment (PFRA)[3], undertaken in accordance with the Flood Risk Regulations 2009[4], have been reviewed in undertaking this assessment. The draft BuCC Local Flood Risk Management Strategy (LFRMS)[5] is at the consultation stage and was published in February 2013. The local planning authorities for the study area are Chiltern District Council (ChDC), Aylesbury Vale District Council (AVDC) and Wycombe District Council.

Buckinghamshire Preliminary Flood Risk Assessment

2.3.2 The BuCC PFRA confirms that there are no indicative flood risk areas of national significance within Buckinghamshire. Consequently, only Stage 1 of the Flood Risk Regulations 2009 process (i.e. the PFRA) has been completed.

2.3.3 The most significant historical flood event in Buckinghamshire was caused by high groundwater levels across the chalk aquifers that resulted in high river flows and widespread groundwater flooding in the valleys of the Chiltern Hills. The flooding

[3] Jacobs (2011), *Buckinghamshire County Council Preliminary Flood Risk Assessment.*
[4] *Flood Risk Regulations 2009* (SI 2009 No.3042). London, Her Majesty's Station Office.
[5] Buckinghamshire County Council (2013), *Buckinghamshire County Council Local Flood Risk Management Strategy 2013 – 2018.*

occurred in the winter of 2000/2001 and is considered to have had significant harmful consequences.

2.3.4 The BuCC PFRA recognises that the construction and engineering of the Proposed Scheme may have a significant impact upon surface water flows. For example embankments and cuttings may, without suitable design solutions, impede the flow of small watercourses and surface runoff.

Buckinghamshire County Council Local Flood Risk Management Strategy

The BuCC LFRMS[6] guides the planning process in relation to flood risk across all categories. The LFRMS outlines key policies in relation to development within Buckinghamshire. Specific policies of relevance to the Proposed Scheme are:

- "Policy 6 – the LLFA will seek to reduce the risk of flooding now in a way which does not compromise the interconnected needs of the economy, society and environment in the future"; and
- "Policy 15 – sustainable drainage systems (SuDS) should be used in new developments to reduce the rate and volume of surface water. Design of SuDS to meet national standards and to be adopted by the SuDS Approval Body (SAB). SuDS are expected to provide natural removal of pollutants and sediments, promote aquifer recharge, enhanced biodiversity, add aesthetic value and be easily maintainable."

Thames Region Catchment Flood Management Plan

2.3.5 The River Misbourne flows through the study area and as a tributary of the River Colne falls within the Thames Region Catchment Flood Management Plan (CFMP)[7] which covers the extent of the Thames basin. The main focus of the plan revolves around the high risk of flooding to key urban centres, the majority of which lie downstream of the study area, and the predicted future increase in flood risk due to climate change. The CFMP 'sub-area 4' covers chalk and downland catchments and includes the Colne tributaries, Wye, Middle Mole, Thame and Upper Lee. Proposed actions for these catchments include maintaining the existing river system capacity and looking for opportunities to make it more efficient, working with local planning authorities to retain remaining floodplain and increasing public awareness.

Chiltern District Strategic Flood Risk Assessment

2.3.6 The ChDC Level 1 Strategic Flood Risk Assessment (SFRA)[8] and supporting mapping has recently been updated. The ChDC SFRA provides key information and advice on planning policy within the development area and is used as a basis for policy setting and planning decisions.

2.3.7 The updated ChDC SFRA focuses on detailed mapping of critical drainage areas which are most at risk of flooding from surface water, groundwater and ordinary

[6] Buckinghamshire County Council (2013), *Buckinghamshire County Council Local Flood Risk Management Strategy 2013 – 2018.*
[7] Environment Agency (2007), *Thames Region CFMP*
[8] Jacobs and CDC (2013), *Chiltern District Council SFRA Level 1 Update*

watercourses. The ChDC SFRA states that in these areas sustainable drainage solutions should be a priority.

2.3.8 The ChDC SFRA also records historical incidences of flooding from all sources. The predominant source of flooding within the area covered by CFA10 is from the River Misbourne in Great Missenden and Little Missenden. The ChDC SFRA also indicates that surface water flooding has occurred in Great Missenden and South Heath in the past and suggests that rising groundwater levels in the Great Missenden area have exacerbated the impact of localised flooding.

2.3.9 The ChDC SFRA includes policy recommendations for the ChDC Core Strategy and suggests the following priorities:

- consider adaptations to climate change;
- promote integrated flood risk management and sustainable management of land and local flood risk;
- improve recording of flood incidents;
- promote the use of SuDS including at homeowner level to reduce urban creep; and
- improve communication and involvement of partners, stakeholders and the general public.

2.3.10 As an overall policy the ChDC SFRA recommends promoting development and designs that reduce the overall risk of flooding and seeks to ensure that development results in a positive reduction in flood risk to the district through reducing the frequency or severity of flooding.

2.3.11 The ChDC Level 2 SFRA[9] was completed in June 2008 following the initial Level 1 report. Potential development sites are reviewed in light of findings of the Level 1 SFRA and a summary of potential risks is provided to inform the sequential test. This document states that the "primary objective of this Level 2 SFRA is to ensure that the risk of flooding can be realistically mitigated through the design process". Outcomes of the assessment conclude that it is "imperative that the development control process emphasises the critical importance of flood risk, influencing the design process accordingly".

Core Strategy for Chiltern District

2.3.12 The Core Strategy for the Chiltern District[10] forms part of the local development framework (LDF) and was adopted in November 2011. It is the overarching plan in the LDF and contains planning policy of specific relevance to flood risk and development, covering the following points:

- sites in Flood Zones 2 and 3 are not suitable for development, since the capacity of the floodplain will be reduced and the flow of floodwater impeded. This will increase the severity of flooding and also increase the risk of flooding elsewhere;

[9] Jacobs and CDC (2008), *Chiltern District Council SFRA Level 2*
[10] CDC (2011), *Core Strategy for Chiltern District*

- support will be given to proposals to reduce the vulnerability of existing developments and land uses within the floodplain; and
- consideration of local flooding, as indicated by the ChDC SFRA Critical Drainage Area (CDA) mapping, should be an integral part of design and measures must be taken to reduce the flood risk.

2.3.13 Policy CS4 outlines measures ChDC should implement to ensure that development is sustainable with a focus on the incorporation of SuDS elements. This is of particular importance in identified critical drainage areas to ensure that development will not increase the risk of flooding within prospective development sites or to adjoining land and properties. It also promotes seeking options to reduce the risk of flooding in appropriate circumstances as part of new development proposals.

Aylesbury Vale Water Cycle Strategy

2.3.14 The Aylesbury Vale Water Cycle Strategy[11] reviews flood risk management planning policy relevant to Aylesbury Vale and outlines location specific concerns regarding flood risk management. A relatively high susceptibility to groundwater flooding across the district is noted. All proposed developments in the Aylesbury Vale district will require detailed drainage strategies and SuDS proposals. Surface water should be discharged separately to ground or local watercourses without using existing public sewers.

Aylesbury Vale Strategic Flood Risk Assessment

2.3.15 The Aylesbury Vale Level 1 SFRA[12] includes advice on planning policy within the development area and is often used as a basis for policy setting and planning decisions.

2.3.16 The AVDC SFRA identifies the need for surface water runoff management in the district. Infiltration based SuDS are preferred as a means of surface water management, particularly to the south of Aylesbury, and ground investigations are required to determine the feasibility of such techniques. In addition opportunities are sought to enhance and supplement the existing flood storage and alleviation measures already in place for AVDC. Opportunities for source-controlled flood risk management are identified. Specifically AVDC SFRA policy indicates that:

- management of surface runoff should use site specific and strategic SuDS measures encouraging source control where possible; and
- proposed infrastructure should avoid interference with floodplain flow and storage where they cross existing river valleys unless they are also specifically designed as part of the strategic flood risk management options. Consultation with the Environment Agency is essential in such cases.

[11] Halcrow (2012), *Aylesbury Vale Water Cycle Strategy.*
[12] Royal Haskoning (2007), *Aylesbury Vale Strategic Flood Risk Assessment – Level 1 Report.*

Vale of Aylesbury Plan

2.3.17 The Vale of Aylesbury Plan[13] is in the consultation stage. Objective 7 which covers adaptation to and mitigation against climate change is of specific relevance to flood risk and development:

- no built greenfield development to take place in the functional floodplain and/or Flood Zones 2 or 3 other than for essential strategic infrastructure; and
- improved flood protection including more effective use of multi-functional green spaces which can assist in flood control.

2.3.18 Policy VS11 sets out the position of AVDC towards protection of environmental assets with a focus on maintaining watercourses and their settings for their biodiversity and recreational value, as well as incorporation of SuDS and flood storage areas to reduce downstream flood risk.

Wycombe District Strategic Flood Risk Assessment

2.3.19 The Wycombe District SFRA[14] predominantly focuses on the river catchments of the River Thames, River Wye, Hamble Brook and Hughenden Stream which are located to the south of the Proposed Scheme outside of the study area. The Wycombe District SFRA notes that there is a risk of groundwater emergence from the Chalk aquifer within the area.

Wycombe District Core Strategy

2.3.20 Wycombe District core strategy Policy CS17[15] seeks to conserve and enhance watercourses and water bodies and to conserve natural resources and prevent water pollution including effects on groundwater. The policy seeks to minimise off-site water discharge to avoid increasing risks of or from flooding.

[13] Aylesbury Vale District Council (2013), *The Vale of Aylesbury Plan Strategy 2011 – 2031 Proposed Submission (2013).*
[14] Jacobs (2007), *Wycombe District Strategic Flood Risk Assessment.*
[15] Wycombe District Council (2008), *Adopted Core Strategy.*

3 Design criteria

3.1.1 It is a requirement of the design that the Proposed Scheme shall be protected against flooding from any source during the 1 in 1000 years return period (0.1% annual probability) rainfall event with water levels not rising closer than 1m to the top of rail level.

3.1.2 In accordance with the NPPF, an allowance for climate change is included in the assessment by assuming that peak rainfall intensity will increase by 30%, and that peak river flows will increase by 20%.

4 Data sources

4.1 Primary datasets

4.1.1 Consistent with the requirements of the NPPF this assessment considers the risk of flooding from rivers, direct surface water runoff, rising groundwater, overwhelmed drainage and sewer systems, and artificial sources such as reservoirs, lakes and canals.

4.1.2 The Proposed Scheme lies entirely outside the extent of flooding from the sea and therefore the risk of flooding from tidal sources is not considered in this assessment.

4.1.3 The primary datasets for each source of flooding used to assess the design elements are presented in Table 2. A high-level review of the risk of flooding and potential impacts is undertaken on the basis of these datasets across all flood sources. Where this review indicates potentially significant impacts on the risk of flooding, or a risk of flooding to the line, further investigation in the form of hydraulic modelling is undertaken.

Table 2: Flood risk assessment data sources

Source of flooding	Datasets reviewed	Data owner
Rivers	Flood zone mapping. Detailed River Network. Catchment hydraulic models.	Environment Agency
Surface water	Flood Map for Surface Water (FMfSW). Local surface water flood mapping.	Environment Agency LLFA
Groundwater	Areas susceptible to groundwater flooding. 1:50,000 geological mapping (superficial and bedrock). Potential for elevated groundwater.	British Geological Survey (BGS) LLFA
Drainage and sewer systems	Sewer network plans. Lost river location plans.	Water companies (various) Local planning authority
Artificial sources	Reservoir inundation mapping (RIM) Canal infrastructure locations. Trunk water main asset plans.	Environment Agency Canal & River Trust Water companies (various)

4.2 Site familiarisation visits

4.2.1 No site familiarisation visits were undertaken within the study area.

5 The proposed development

5.1 Topography and land use

5.1.1 The land use within the study area is predominantly mixed rural agriculture, interspersed with areas of woodland and isolated farmsteads and dwellings. Settlements within the area include Hunt's Green, Kingsash and Wendover Dean, together with the south-western edge of Wendover.

5.1.2 The only watercourses within the study area are the Castle Park Stream and Wendover Brook both of which rise north of the Proposed Scheme in the Wendover area and flow north towards the upper reaches of the River Thame.

5.2 Local flood risk receptors

5.2.1 The vulnerability of each local receptor with an identified pathway within the study area is presented in Table 3. The vulnerability is classified in accordance with the recommendations of Table 2 in the NPPF Technical Guidance Document and the Scope and Methodology Report (SMR) (see Volume 5: Appendix CT-001-000/1) and the SMR Addendum (see Volume 5: Appendix CT-001-000/2).

Table 3: Vulnerability of local receptors in CFA10

Local receptor	Description	Vulnerability classification	Source/pathway
Mapridge Cottage	Residential dwelling, associated outbuildings and land	More vulnerable	Surface water 30 years - deep
Dutchlands Farm	Residential dwelling, associated outbuildings and land	More vulnerable	Surface water 30 years - deep
Wendover Dean Farm	Residential dwelling, associated outbuildings and land	More vulnerable	Surface water 30 years - shallow
Properties on London Road	Residential dwellings and associated infrastructure	More vulnerable	Surface water 30 years - deep
Smalldean Farm and Cottages	Residential dwellings and outbuildings	More vulnerable	Surface water 200 years - shallow
Road Barn Farm	Residential dwelling and farm buildings	More vulnerable	Surface water 30 years - deep
Grove Farm	Residential dwelling, associated outbuildings and land	More vulnerable	Surface water 30 years - deep
Wendover House School	Educational establishment	More vulnerable	River flooding Flood Zone 3 Surface water 30 years - deep
Wendover town centre	Residential dwellings and associated infrastructure	More vulnerable	River flooding Flood Zone 3 Surface water 30 years - deep
John Colet, Wendover Church of England and John Hampden Schools	Education establishments	More vulnerable	River flooding Flood Zone 3 Surface water 30 years - deep

Local receptor	Description	Vulnerability classification	Source/pathway
Wendover Cricket Club	Recreational facility	Water compatible	Surface water 30 years - deep
Properties on Ellesborough Road	Residential dwellings	More vulnerable	Surface water 30 years - shallow
Land at Coneycroft Farm	Agricultural land	Less vulnerable	Surface water 30 years - deep
Properties at Nash Lee	Residential dwellings and associated gardens	More vulnerable	Surface water 30 years - deep

5.3 Description of the Proposed Scheme

5.3.1 The Proposed Scheme through the study area will be approximately 8km in length. The key elements of the scheme are described below and shown on Map CT-06-035 to Map CT-06-040 (Volume 2, CFA10 Map Book).

5.3.2 The Proposed Scheme will commence in cutting at the Leather Lane overbridge, north of Great Missenden, and will proceed in a south-east to north-west direction onto a viaduct to the north-east of Wendover Dean. It will pass to the east of Dunsmore on a series of embankments and cuttings, before crossing over the A413 London Road and the Marylebone to Aylesbury Line on a viaduct at Small Dean. It will then continue parallel to the A413 and the Marylebone to Aylesbury Line in tunnel, emerging into a cutting just beyond the western edge of Wendover. It will leave the Dunsmore, Wendover and Halton area on embankment.

6 Existing flood risk

6.1 Historical flooding incidents

6.1.1 No instances of historical flooding have been identified within the datasets available from the Environment Agency or within the BuCC PRFA for the study area.

6.1.2 Thames Water historical DG5 sewer flooding records show that there have been a very small number of sewer flooding incidents within the study area. These are not recorded precisely within either the ChDC SFRA or the BuCC PFRA. The ChDC SFRA data, however, indicates that records relate to instances of flooding of one or two properties only. The BuCC PFRA concludes that sewer flooding across Buckinghamshire generally appears to be sporadic and infrequent.

6.2 Risk of flooding from rivers

6.2.1 The Proposed Scheme will not cross any Environment Agency designated main rivers or ordinary watercourses within the study area. The extent of the Proposed Scheme within CFA10 lies wholly within Flood Zone 1. Although Flood Zone 3 of the Castle Park Stream extends into the study area, there are no elements of the Proposed Scheme that lie within the area at risk. Consequently there is no significant risk of flooding to the Proposed Scheme from rivers.

6.3 Risk of flooding from surface water

6.3.1 The Proposed Scheme will cross a number of dry valleys and ditches within CFA10 that are shown on the FMfSW to be at risk of surface water flooding for both the 1 in 30 years return period (3.3% annual probability) and the 1 in 200 years return period (0.5% annual probability) rainfall events. These dry valleys do not have permanent watercourses but during rainfall events convey overland flow to the downstream catchments of either the River Misbourne or the Castle Park Stream and are therefore at risk of deep (greater than 0.3m) surface water flooding.

6.3.2 Existing conventional rail and highway embankments cross the dry valleys in this area and as a result of a loss of conveyance are shown to cause an increased depth and extent of surface water flood risk on the upstream sides. There are also conventional rail and road cuttings that cross the dry valleys which are shown to convey floodwaters between dry valley areas. In particular the A413 Nash Lee Road, which is in cutting past Wendover, is shown to carry surface water from the Grove Farm area north as far as Nash Lee Lane.

Wendover Dean dry valley

6.3.3 East of Wendover Dean, as shown on Map CT-06-036 (Volume 2, CFA10 Map Book), the Proposed Scheme will cross an area shown on the FMfSW to be at risk of shallow (between 0.1m and 0.3m in depth) surface water flooding during the 1 in 200 years return period (0.5% annual probability) rainfall event. The route will be on the Wendover Dean viaduct at the crossing of the dry valley and the top of rail level will be at 178m above Ordnance Datum (AOD), 18m above surrounding ground.

Consequently, there will be no significant risk of flooding to the Proposed Scheme from surface water at this location.

Small Dean dry valley

6.3.4 At Small Dean Lane, as shown on Map CT-06-037 (Volume 2, CFA10 Map Book), the Proposed Scheme will cross an area shown on the FMfSW to be at risk of deep (greater than 0.3m in depth) surface water flooding during both the 1 in 30 years return period (3.3% annual probability) and 1 in 200 years return period (0.5% annual probability) rainfall events associated with a dry valley that forms part of the catchment of the Castle Park Stream. The route will be raised on the Small Dean viaduct to pass over the A413 London Road and the Marylebone to Aylesbury Line as well as Small Dean Lane. The top of rail level will be at approximately 160m AOD on the viaduct at the valley crossing, approximately 12m above surrounding ground. Consequently, there will be no significant risk of flooding to the Proposed Scheme from surface water at this location.

Grove Farm dry valley

6.3.5 North-east of Grove Farm, as shown on Map CT-06-038 (Volume 2, CFA10 Map Book), the Proposed Scheme will cross an area shown on the FMfSW to be at risk of deep surface water flooding in both the 1 in 30 years return period (3.33% annual probability) and 1 in 200 years return period (0.5% annual probability) rainfall events associated with a dry valley which forms part of the network of valleys at the head of the catchment of the Castle Park Stream. Immediately downstream of the proposed crossing there are existing embankments crossing the dry valley. The A413 Nash Lee Road and the Marylebone to Aylesbury line obstruct surface water flood flows resulting in a significantly increased risk of surface water flooding upstream of the embankments.

6.3.6 The route will be on a high embankment at the dry valley crossing. The top of rail level will be 152m AOD approximately 14m above surrounding ground levels. Consequently, there will be no significant risk of surface water flooding to the Proposed Scheme at the Grove Farm dry valley.

6.3.7 The Proposed Scheme includes the provision of an access underbridge beneath the embankment. The access track will also be raised above surrounding ground by a minimum of 1.5m within the area at risk. Minimum road levels on the access track will be 142.4m AOD approximately 4m above the ground level in the base of the valley. Consequently, the access underbridge will not be at significant risk of flooding.

Bacombe Lane dry valley

6.3.8 To the south of Bacombe Lane, as shown on Map CT-06-038 (Volume 2, CFA10 Map Book), the Proposed Scheme will cross a small dry valley that historically formed part of the catchment of a tributary of the Castle Park Stream but has since been intercepted by the cutting of the A413 Nash Lee Road. The dry valley is shown on the FMfSW to be at risk of deep surface water flooding during both the 1 in 30 years return period (3.3% annual probability) and 1 in 200 years return period (0.5% annual probability) rainfall events.

6.3.9 The ground level at the crossing is approximately 142m AOD. The top of rail level at the valley crossing will be 143m AOD and the route will be on low embankment prior to descent into green tunnel to the south of Wendover. Comparison of the FMfSW outlines with ground levels suggests 1 in 200 years return period (0.5% annual probability) flood levels of just over 142m AOD. There will be a freeboard of approximately 1m between the predicted flood water level and the Proposed Scheme, and the risk of flooding from this source is low.

6.3.10 Surface water flows will be collected into the land drainage of the Proposed Scheme at the toe of the embankment and will be attenuated before being diverted to the drainage provision at the Grove Farm dry valley.

Ellesborough Road

6.3.11 The carriageway of Ellesborough Road to the south of Wendover, as shown on Map CT-06-038 (Volume 2, CFA10 Map Book), is shown to be at risk of shallow surface water flooding during both the 1 in 30 years return period (3.3% annual probability) and 1 in 200 years return period (0.5% annual probability) rainfall events. The route will be within the Wendover green tunnel at the valley crossing, and there will therefore be no significant risk of flooding to the Proposed Scheme from this source.

Coneycroft Farm

6.3.12 North of Coneycroft Farm, as shown on Map CT-06-038 (Volume 2, CFA10 Map Book), at the north-western extent of Wendover there are two dry valleys that converge immediately upstream of the A413 Nash Lee Road. Where the Proposed Scheme crosses these valleys areas at risk of shallow flooding from direct surface water runoff are shown on the FMfSW in the 1 in 200 years return period (0.5% annual probability) rainfall events, and at northern dry valleys in the 1 in 30 years return period (3.3% annual probability) rainfall event. The route will be within the Wendover green tunnel at the valley crossing. Tunnel cover will be provided in the form of raised earthwork bunds. There will therefore be no significant risk of flooding to the Proposed Scheme from this source.

6.4 Risk of flooding from groundwater

6.4.1 The Proposed Scheme will not cross any of the areas within CFA10 that are shown to have a moderate or greater susceptibility to groundwater emergence.

6.4.2 All superficial deposits within the study area are unproductive with the exception of the Wendover Dean and Small Dean dry valleys, which are classified as Secondary A aquifers. The route will be on viaduct across these areas. There will be no significant risk of flooding from groundwater emerging from superficial deposits.

6.4.3 The Proposed Scheme will be in cutting through areas where the bedrock is formed by the Chalk aquifer. Although the susceptibility to groundwater emergence at the surface is 'low', where the Proposed Scheme is below ground, there is potential for groundwater emergence in the cutting. The mapping for the Wycombe SFRA suggests that there is a risk of groundwater emerging along the A413 Nash Lee Road cutting.

6.4.4 As discussed in the CFA10 Water Resources Assessment (Volume 5: Appendix WR-002-010) there is potential for the Wendover green tunnel and the Wendover north cutting (as shown on Map CT-06-038 and Map CT-06-039, Volume 2, CFA10 Map Book) to act as groundwater sinks, with excavation up to 10m below potential groundwater levels. There is a significant risk of flooding to these elements from bedrock groundwater.

6.5 Risk of flooding from drainage systems

6.5.1 The Proposed Scheme will not pass through any urban areas for the full extent within the study area. There will consequently be no significant risk to the Proposed Scheme of flooding from drainage systems within CFA10.

6.6 Risk of flooding from artificial sources

6.6.1 The Proposed Scheme will not intersect any areas shown on the Environment Agency reservoir inundation maps to be at risk of flooding in the event of impounded reservoir failure. No further artificial water bodies have been identified within the study area that will constitute a significant risk of flooding to the Proposed Scheme.

6.7 Summary of baseline flood risk

Table 4: Summary of baseline flood risk for all sources of flooding in CFA10

Source of flooding	Location of flooding source	Flood risk category	Elements at risk	Assessment of risk
Surface water	Wendover Dean dry valley	Medium 30 years - shallow 200 years - shallow	Wendover Dean viaduct	Top of rail level will be >1m above predicted flood water level.
Surface water	Small Dean dry valley	High 30 years - deep	Small Dean viaduct	Top of rail level will be >1m above predicted flood water level.
Surface water	Grove Farm dry valley	High 30 years - deep	Small Dean viaduct northern approach embankment	Top of rail level will be >1m above predicted flood water level.
			Grove Farm accommodation underbridge	Road level will be >1m above predicted flood water level.
Surface water	Bacombe Lane dry valley	High 30 years - deep	Small Dean viaduct northern approach embankment	Top of rail level will be <1m above predicted flood water level. Land drainage proposed to collect surface water runoff and provide attenuation in a balancing pond.
Surface water	Ellesborough Road dry valley	Medium 30 years - shallow 200 years - shallow	Wendover green tunnel	Proposed Scheme will be in tunnel.
Surface water	Coneycroft Farm dry valley	Medium 30 years - shallow 200 years - shallow	Wendover green tunnel	Proposed Scheme will be in tunnel.
Groundwater	Chalk aquifer	Low Low	Wendover green tunnel Wendover north cutting	Significant risk of flooding from bedrock aquifers due to cuttings up to 10m below potential groundwater levels.

7 Flood risk management measures

7.1 Risk of flooding from rivers

7.1.1 There are no instances where the Proposed Scheme will be at risk of flooding from watercourses within the study area, nor any anticipated effects on the risk of flooding from rivers arising from the Proposed Scheme. Therefore, no specific mitigation will be required.

7.2 Risk of flooding from surface water

7.2.1 The FMfSW shows the extent of flooding due to rainfall that would occur prior to collection of water into streams or designated drainage infrastructure. By collecting the flows from the dry valley into an adequately designed land drainage system, the Proposed Scheme will effectively remove the risk of surface water flooding from the point at which the flow is intercepted, thus removing the risk of flooding to the Proposed Scheme at Bacombe Lane.

7.2.2 Measures to manage the risk of flooding from surface water runoff include:

- provision of replacement storage and surface water balancing ponds to restrict peak surface water runoff rates to existing rates;
- design of culverts with adequate capacity to convey the 1 in 100 years (1% annual probability) flow including an allowance for climate change; and
- design of culverts with internal 600mm freeboard and 300mm allowance for siltation to minimise the chances of blockage or future capacity restrictions.

7.2.3 There will not be any anticipated changes to the risk of flooding from surface water sources as a result of the Proposed Scheme within the study area. Therefore no specific management measures will be required.

7.3 Risk of flooding from groundwater

7.3.1 There is a risk of flooding from groundwater within the Wendover green tunnel and the Wendover north cutting. Groundwater emergence in the cuttings has been taken into account in the design, and groundwater will be collected in the surface water drainage system at the base of the cutting to prevent flooding of the Proposed Scheme.

7.3.2 There will not be any significant impact on the risk of flooding from groundwater arising from the Proposed Scheme. Therefore no specific management measures will be required.

7.4 Risk of flooding from drainage systems

7.4.1 There will be no risk of flooding from drainage systems to the Proposed Scheme, nor any anticipated effects on the risks of flooding from drainage systems within the study area arising from the Proposed Scheme. Therefore, no specific management measures will be required.

7.5 Risk of flooding from artificial sources

7.5.1 There are no instances where the Proposed Scheme will be at significant risk of flooding from artificial sources, nor any anticipated effects on the risks of flooding from artificial sources within the study area arising from the Proposed Scheme. Therefore, no specific management measures will be required.

8 Post-development flood risk assessment

8.1 Local receptors

8.1.1 In addition to the risk of flooding that exists to the Proposed Scheme, there is potential for the Proposed Scheme to affect the risk of flooding to third party receptors by altering flow volumes and mechanics across the range of flood sources. All local receptors with a potential flood risk are identified in Section 5.2 of this report. For the Proposed Scheme to have an impact on a given receptor, the identified pathway for that receptor must be shared by both the subject receptor and the Proposed Scheme, with the result that a number of cases can be excluded immediately. Table 5 summarises the shared pathways between the Proposed Scheme and each receptor, and identifies cases where no shared pathway exists.

Table 5: Shared flood risk pathways in CFA10

Local receptor	Vulnerability classification as per the NPPF	Pathway	Shared pathway between Proposed Scheme and receptor
Mapridge Cottage	More vulnerable	Surface water 30 years - deep	No shared pathway.
Dutchlands Farm	More vulnerable	Surface water 30 years - deep	No shared pathway.
Wendover Dean Farm	More vulnerable	Surface water 30 years - shallow	Wendover Dean viaduct will be approximately 300m upstream.
Properties on London Road	More vulnerable	Surface water 30 years - deep	Small Dean viaduct will be approximately 550m downstream.
Smalldean Farm and Cottages	More vulnerable	Surface water 200 years - shallow	Small Dean viaduct will be approximately 500m downstream.
Road Barn Farm	More vulnerable	Surface water 30 years - deep	To be demolished.
Grove Farm	More vulnerable	Surface water 30 years - deep	Small Dean viaduct northern approach embankment will be approximately 150m downstream.
Wendover House School	More vulnerable	River flooding Flood Zone 3 Surface water 30 years - deep	No shared pathway.
Wendover town centre	More vulnerable	River flooding Flood Zone 3 Surface water 30 years - deep	No shared pathway.
John Colet, Wendover Church of England and John Hampden Schools, Wendover	More vulnerable	River flooding Flood Zone 3 Surface water 30 years - deep	No shared pathway.
Wendover Cricket Ground	Water compatible	Surface water 30 years - deep	No shared pathway.
Properties on Ellesborough Road	More vulnerable	Surface water 30 years - shallow	Proposed Scheme will be in tunnel upstream. No shared pathway.

Local receptor	Vulnerability classification as per the NPPF	Pathway	Shared pathway between Proposed Scheme and receptor
Land at Coneycroft Farm	Less vulnerable	Surface water 30 years deep	Wendover green tunnel bunding will be at this location.
Properties at Nash Lee	More vulnerable	Surface water 30 years deep	No shared pathway.

8.1.2 There is also the potential for the Proposed Scheme to change the baseline risk of flooding described in Section 6 of this report. Though designed such that the probability of the Proposed Scheme flooding in any given year is less than 1 in 1,000, any change to the baseline risk of flooding could impact on the assessment of flood risk to the Proposed Scheme. All cases of flood risk discussed in Section 6 of this report are therefore reconsidered regardless of the presence or otherwise of third party local receptors.

8.2 Impact on risk of flooding from rivers

8.2.1 The Proposed Scheme will not cross any Environment Agency designated main rivers, or ordinary watercourses for the full extent within the study area. The extent of the Proposed Scheme within CFA10 lies wholly within Flood Zone 1. Consequently, there will be no direct impact on the risk of flooding from rivers within the study area.

8.3 Impact on risk of flooding from surface water

Wendover Dean dry valley

8.3.1 At the Wendover Dean dry valley a viaduct pier will be located within the area at risk of surface water flooding. This will locally alter the surface water flood pathways. In the vicinity of the viaduct pier, the land use is predominantly agricultural land and pasture (less vulnerable development). Wendover Dean Farm (more vulnerable development) lies downstream. During a rainfall event surface water flows within the valley will be displaced away from the viaduct pier. The flow routes, however, are not expected to be significantly disrupted. Connectivity with the downstream catchment will be retained beneath the viaduct. There will therefore be no significant change in the risk of surface water flooding within the Wendover Dean dry valley as a result of the Proposed Scheme.

Small Dean dry valley

8.3.2 At the Small Dean dry valley four of the viaduct piers and the southern approach embankment to the viaduct will be located within the area at risk of surface water flooding. These obstructions will locally alter the surface water flood pathways. In the vicinity of the viaduct pier the land use is predominantly agricultural land and pasture (less vulnerable development). Road Barn Farm, which is due to be demolished prior to construction of the Proposed Scheme, lies downstream of the viaduct.

8.3.3 Surface water runoff will be collected into an attenuation pond upstream of the viaduct near to the properties on London Road. Land drainage will be provided to convey flood flows beneath the viaduct and will ultimately discharge to the Castle

Park Stream. All surface water flows will be collected into this system which will be designed with sufficient capacity to convey the 1 in 100 years return period (1% annual probability) flood flow including a 30% allowance for climate change. There will therefore be no increase in the risk of surface water flooding at Small Dean as a result of the Proposed Scheme and no significant effect on the risk of flooding to third party receptors.

Grove Farm dry valley

8.3.4 At the Grove Farm dry valley the route will be on embankment across the valley flow area and area at risk of surface water flooding. Surface water flows will be collected into an attenuation pond on the upstream side of the embankment. A 1350mm diameter culvert will be constructed beneath both the route and the Grove Farm accommodation underbridge embankment and will connect to the existing culvert beneath the A413 Nash Lee Road and conventional railway embankments which will be enlarged and extended with a formal connection provided to the Castle Park Stream. All drainage elements will be designed to convey the 1 in 100 years return period (1% annual probability) rainfall event including a 30% allowance for climate change and allowances for siltation and blockage.

8.3.5 Enlargement of the existing culvert will reduce the upstream surface water flood risk by reducing an existing restriction on flood flows, and the balancing pond will ensure that downstream flood risk is not increased as a result of the improved conveyance. There will be a potential beneficial change in the risk of flooding to agricultural land at Grove Farm through the reduction in ponding upstream of the Proposed Scheme. The extent of the effect, however, is reduced due to the size of the proposed balancing pond which occupies much of the area currently shown to be at risk. Although the Proposed Scheme could result in slight potential reductions in the risk of flooding downstream of the access track there is unlikely to be a significant effect at the farm itself. There will therefore be no significant impact on the risk of flooding within the Grove Farm dry valley as a result of the Proposed Scheme.

Bacombe Lane dry valley

8.3.6 At the Bacombe Lane dry valley the route will be in cutting approaching the Wendover green tunnel. In order to maintain continuity of flows surface water will be collected into the Proposed Scheme land drainage system and diverted to the culvert near Grove Farm which has been designed with sufficient capacity for both catchments. Although the diversion of flows potentially creates increased surface water volumes within the downstream catchment flows will be attenuated prior to discharge beneath the Proposed Scheme, such that there will be no significant effect on peak surface water discharges, and therefore no increased risk of flooding from this source downstream of the Proposed Scheme.

8.3.7 All drainage elements will be designed with sufficient capacity to convey the 1 in 100 years return period (1% annual probability) rainfall event including a 30% allowance for climate change. The Proposed Scheme is therefore not expected to restrict flood flows and will not increase the risk of flooding upstream of the Proposed Scheme. There will be no significant effect on the risk of flooding to properties on Bacombe Lane (more vulnerable development).

Ellesborough Road dry valley

8.3.8 At the Ellesborough Road dry valley the Proposed Scheme will be within the Wendover green tunnel. There will be no permanent above-ground construction within the area at risk of flooding. Existing ground contours will be restored following construction of the tunnel and therefore existing flow routes will remain unaffected by the Proposed Scheme in the permanent case. There will therefore be no impact on the risk of flooding from surface water at the Ellesborough Road dry valley.

Coneycroft Farm dry valley

8.3.9 North-east of Coneycroft Farm where the Proposed Scheme crosses the dry valley surface water flows will be intercepted by the earthwork bunds which form cover for the Wendover green tunnel. Surface water flows will be collected into a land drainage ditch which will convey flows along the western side of the Proposed Scheme some 1.5km to a balancing pond pond at B4009 Nash Lee Road. The pond discharges to a tributary ditch within the Stoke Brook catchment.

8.3.10 These dry valleys currently form part of the catchment of the Wendover Brook. By diverting flows to the Stoke Brook catchment overall flood flows in the Stoke Brook could be increased as a result of the Proposed Scheme. Surface water flows will therefore be released from the balancing pond at a trickle rate to avoid increasing the risk of flooding in the Stoke Brook catchment. Diversion of flows away from the Wendover Brook catchment may result in a slight reduction in the risk of surface water flooding downstream of the Proposed Scheme where properties on Aylesbury Road and Halton Lane in Wendover are at risk of flooding from the Wendover Brook. These properties, however, are over 1km downstream of the Proposed Scheme and any such effects will be very slight.

8.3.11 All surface water drainage elements will be designed with sufficient capacity to convey the 1 in 100 years return period (1% annual probability) flood flow including a 30% allowance for climate change. There will therefore be no significant increase in the risk of flooding upstream of the Proposed Scheme. The Proposed Scheme will have no significant impact on the risk of flooding from the Coneycroft Farm dry valleys.

8.4 Impact on risk of flooding from groundwater

8.4.1 As discussed in the CFA10 Water Resources Assessment (Volume 5: Appendix WR-002-010) there is potential for the Wendover green tunnel and the Wendover north cutting, as shown on Map CT-06-038 and Map CT-06-039 (Volume 2, CFA10 Map Book), to obstruct groundwater flow if below the water table. The zone of influence, however, indicates no springs or other groundwater receptors will be affected significantly and therefore no significant effect on groundwater levels is predicted. In addition the susceptibility of groundwater emergence from the Chalk aquifer at natural ground level is relatively low according to the BGS susceptibility to groundwater flooding dataset. Consequently the Proposed Scheme is not expected to impact on the risk of groundwater flooding elsewhere significantly.

8.5 Impact on risk of flooding from drainage systems

8.5.1 The Proposed Scheme will not pass through any urban areas for the full extent within the study area. All highway crossings required will be diverted or re-designed as bridges or underpasses with the exception of those that will be crossed on viaduct which will remain unchanged. Highway drainage for all new or realigned roads will be designed in accordance with the relevant design guides and regulations and consequently no increase in the risk of flooding arising from overloaded highway drains is anticipated.

8.6 Impact on risk of flooding from artificial sources

8.6.1 The Proposed Scheme will not cross any areas shown on the Environment Agency reservoir inundation maps to be at risk of flooding in the event of impounded reservoir failure. Consequently the Proposed Scheme will not affect the risk of flooding from this source within the study area.

8.7 Summary of potential impacts on flood risk

Table 6: Summary of potential flood risk impacts in CFA10

Receptor	Vulnerability classification	Pathway	Impacts
General Proposed Scheme	N/A	River flooding	No significant effects.
		Surface water	Potential minor localised changes in flow and flood mechanism due to collection of surface water flows into formal drainage systems. No significant effects.
		Groundwater	No significant effects.
		Drainage systems	No significant effects.
		Artificial sources	No significant effects.
Wendover Dean Farm	More vulnerable	Surface water 30 years - shallow	No significant change in surface water flow paths or obstruction of flows, therefore no significant effects.
Properties on London Road	More vulnerable	Surface water 30 years - deep	No significant change in surface water flow paths or obstruction of flows, therefore no significant effects.
Smalldean Farm and Cottages	More vulnerable	Surface water 200 years - shallow	No significant change in surface water flow paths or obstruction of flows, therefore no significant effects.
Grove Farm	More vulnerable	Surface water 30 years - deep	Surface water will be collected into Proposed Scheme land drainage, designed with sufficient capacity. No significant effects.
Land at Coneycroft Farm	Less vulnerable	Surface water 30 years - deep	Surface water will be collected into Proposed Scheme land drainage, designed with sufficient capacity. No significant effects.

9 Conclusions

9.1 Summary

9.1.1 The Proposed Scheme within CFA10 extends from Leather Lane south of Hunt's Green to Nash Lee Orchard. The study area includes all areas within 1km of the route which includes areas at risk of flooding from various sources as follows:

- areas at risk of river flooding from the Castle Park Stream and Wendover Brook (although the Proposed Scheme does not fall within the area at risk); and
- areas at risk of flooding arising from surface water runoff.

9.1.2 Surface water runoff from all permanent structures will be controlled at source by design thereby preventing increased rates and volumes of surface water runoff to the local surface water network or above ground receptors. As a result the Proposed Scheme will not result in the creation of additional areas of flood risk.

9.1.3 There are some areas at risk of flooding from surface water where the Proposed Scheme will be less than 1m above ground levels. Surface water will be managed by providing sufficient capacity in the drainage system of the Proposed Scheme to collect, attenuate and discharge surface water to a suitable outfall. There are deep cuttings through water-bearing bedrock strata where the Proposed Scheme is at risk of inundation by groundwater. At these locations flooding from groundwater will be collected into the track drainage of the Proposed Scheme. Design standards are such that no flooding of the Proposed Scheme is expected under normal operating conditions for all events up to the 1 in 1,000 year annual probability.

9.1.4 The dominant land use within the study area is agriculture. There are no instances where significant impacts on the risk of flooding from rivers, surface water or groundwater are expected within the study area.

9.1.5 There are no areas where additional specific mitigation for risks of flooding to the Proposed Scheme or for impacts arising would be required.

9.2 Residual flood risks to Proposed Scheme

9.2.1 Residual flood risks arise in situations that are not included in standard design scenarios, or infrastructure fails, for example when a culvert becomes blocked causing flooding upstream. Consequently there may be areas where the potential severity of flooding may exceed the design standard under certain circumstances.

Residual flood risks from rivers

9.2.2 The Proposed Scheme will not cross any rivers within the study area and consequently no residual risks arise to the Proposed Scheme.

Residual flood risks from surface water and minor watercourses

9.2.3 All culverts within the Proposed Scheme are designed with a minimum internal headroom of 600mm above the design flood water level to minimise the risk of

blockage. There is therefore not expected to be any significant increased risk of flooding at dry valley crossings arising from potential blockage of new culverts.

9.2.4 All land drainage is designed to convey the full design flow without reference to upstream flow restrictions and as a consequence, the capacity of the land drainage should not be exceeded in such an event. At Bacombe Lane there is a residual risk of flooding into the tunnel portal should the cut-off drain fail.

9.2.5 Blockage of existing downstream infrastructure could result in backing up of flood water and hence higher flood levels and an increased risk of flooding to the Proposed Scheme. At the majority of locations, the Proposed Scheme is at least 1m above the existing ground levels, and any residual risk to the Proposed Scheme will be negligible. At Bacombe Lane there do not appear to be any formalised culverts or significant surface water collection system associated with A413 Nash Lee Road or the conventional rail cutting crossing the dry valley and the risk of surface water flooding as already is therefore absolute. There is therefore no significant additional risk of flooding to the Proposed Scheme arising from the blockage of downstream surface water infrastructure at Bacombe Lane.

Residual flood risks from groundwater

9.2.6 Groundwater levels rise and fall relatively slowly and for any change to occur in the risk of flooding from this source abnormal below ground intervention is required. The risk of flooding from groundwater is already considered and there are no significant residual risks arising from this source.

Residual flood risks from drainage systems

9.2.7 Blockage of underground surface water collection systems can cause surcharge and associated flooding. There are no risks of flooding to the Proposed Scheme from drainage systems associated with existing infrastructure within the study area.

Residual flood risks from artificial water bodies

9.2.8 There is no significant risk of flooding from artificial or surface water bodies to the Proposed Scheme or nearby land. Therefore no residual risks arise.

9.3 Residual effects of the Proposed Scheme on flood risk

9.3.1 The Proposed Scheme will not affect the risk of flooding from rivers, groundwater or artificial water bodies within the study area. All surface water collection systems are designed with sufficient capacity to convey the 1 in 100 years return period (1% annual probability) rainfall event with allowances included for climate change, siltation and blockage thereby minimising both the likelihood of and any effect arising from blockage of new surface water collection infrastructure.

9.3.2 Surface water discharges from the vent shaft and portal buildings will be attenuated to avoid increasing the load on existing water collection systems and will therefore not increase the potential effect of any residual flooding arising from blocked drainage ditches. There will therefore be no significant residual impacts arising from the Proposed Scheme on the risk of flooding to third parties.

9.4 Compliance with local planning policy

9.4.1 The Proposed Scheme includes an allowance for future increases in the risk of flooding as a result of climate change by adding a 20% increase to design river flows and a 30% increase to rainfall intensities and flows in minor watercourses as recommended in the NPPF Technical Guidance document. SuDS in the form of balancing ponds and swales, as well as the creation of open channel land drainage, are used throughout the design. The Proposed Scheme will be in compliance with the BuCC LFRMS, the Aylesbury Vale Water Cycle Strategy and Thames CFMP. The use of SuDS in the design is also in accordance with the Chiltern and Wycombe core strategies and the emerging Vale of Aylesbury Plan.

10 References

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